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Geographic Information Systems Fact Sheet

What is an information system? We are familiar with such everyday information systems as a telephone directory, a dictionary, an encyclopedia or computer database programs. Most businesses use information systems to keep track of inventory costs and quantity of stock.

At the John C. Stennis Space Center in South Mississippi, researchers are using another type of information system called a Geographic Information System, or GIS. GIS is an electronic way to take an in-depth look at a specific area on Earth.

It takes several steps to create a database or map for a GIS. The first step is to decide the boundaries of the study and gather available information needed for this study. Information about a specific area is gathered through online searches of the World Wide Web and in data catalogs. This can include information and location of roads, railroads, paths, trails, population, land ownership, topography, soils, drainage basins, and utility and telephone lines. This information may be obtained from sensor data, satellite or airborne sensors, aerial photography, field surveys and other existing maps.

The location of specific points on the different layers of a GIS are referenced by a latitude and longitude position. The information used, such as the type of road, the property owner s name, the land use category, etc., is then linked to the map.

The power of a GIS is its ability to take a large amount of information, capture it in a computer format and use it to analyze options and make informed decisions. GIS also saves a great deal of time, accomplishing in a matter of hours what previously took weeks. Commercial GIS products are available that run on standard personal computers.

Geographic Information Systems have been used in almost every facet of natural resource management today. Oil companies use GIS to help in petroleum exploration, routing pipelines and siting production facilities. Timber companies continuously use GIS technology to help them decide where and when to harvest.

GIS technology has been beneficial in assessing damage from two major oil spills, one off the Alaskan coast and one in the Persian Gulf. A Geographic Information System also helped government officials target cleanup efforts in environmentally sensitive areas. GIS is fast becoming an important technology tool. Because of its flexibility, a GIS can be easily adapted to the different needs of the user.

The ultimate benefit of a GIS is for use in a decision support system. People use the information available to help determine the most suitable course of action to manage and sustain our Earth s valuable natural resources.

For more information on GIS technology, contact the Stennis Space Center Commercial Remote Sensing Program Office at (601) 688-2042, or access the CRSP home page on the World Wide Web at http://crsphome.ssc.nasa.gov (no quotes).

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Document: FS-SSC-003 (9612)
Modified: December 1996

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